CHAPTER 1
INTRODUCTION

1-1. Purpose

This manual provides general facility design criteria and guidance to facilitate the decommissioning of nuclear facilities. A discussion of regulatory considerations is provided which will enable the user to understand nuclear facility decommissioning requirements. This document provides particular attention to the subject of radiation decontamination due to its importance as an option during decommissioning.

1-2. Scope

The manual is limited to a discussion of design features and criteria which are intended to minimize radiation exposure, reduce remediation costs, and ease implementation of facility radiological decommissioning. Guidance provided is applicable to U.S. Army power reactors, radiographic facilities, medical diagnostic and treatment facilities, medical laboratories, and research and development facilities. Criteria to facilitate maintenance of the facility in a normal operating mode is not within the scope of this document. However, criteria established for decommissioning may be applicable to operational maintenance. This manual also does not address problems which are often associated with the radiological aspects of decommissioning such as nonradioactive waste reduction and disposal requirements by federal and state agencies. General information concerning radiological hazards and source considerations are provided in appendices B and C to provide the reader important background information pertinent to decommissioning.

1-3. References

Appendix A contains a list of references used in this manual.

1-4. Background

When a decision to terminate operations at a nuclear facility is implemented, the building and site must be decommissioned to protect the public and DOD personnel from unacceptable residual contamination. The decommissioning process is intended to render a facility such that it poses no radiation health safety hazards which would limit use or demolition of the remaining facility. Decommissioning is required for all facilities which produce, use, handle, store, or maintain radioactive materials. Decommissioning may be directed toward the immediate removal or decontamination of the structure, directed toward securing and guarding the contaminated facility site to protect against exposure and thus deferring final decommissioning to a later date, or a combination of immediate and deferred actions.

1-5. Objectives

The basic objectives of this manual are to encourage consideration of decommissioning at the earliest possible stages of the design of nuclear facilities and to facilitate eventual decontamination and decommissioning. This will anticipate the eventual need for decommissioning plans and other actions which will result in a more efficient, less costly cleanup. This planning will help to:

a. Prevent the spread of radioactive material during both normal facility operation and decommissioning.

b. Provide for the containment of spilled or leaked radioactive material in order to prevent the spread of contamination.

c. Enhance access to contaminated material or equipment to facilitate its removal.

d. Enhance structural decontamination through improved surface preparation.

e. Improve decommissioning efforts by addressing the requirements for decontamination and waste handling.

f. Ensure that radiation exposure of both decommissioning personnel and the general public is as low as reasonably achievable.